Facility Name: CAHOKIA DEAD CREEK
Location: SAUGET, IL. (ST CLAIR COUNTY)
EPA Region: 5
Person(s) in Charge of the Facility:
Name of Reviewer: C. E. Mays III Date: 7/20/82
General Description of the Facility:
(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.) Unlined creek bed - the surrounding area had several
landfills operating in the creek's vicinity since 1927 to
the 1960's. Site is surrounded on the north by several
large companies which have been operating since the 1900's.
Scores: $S_M = 9.70$ ($S_{gw} = 4.24$ $S_{sw} = 7.55$ $S_a = 12.31$)
S _{FE} = 30.00
s _{DC} = 50.00

Figure 1

HRS COVER SHEET

8

Math error unda air pathway Muchael about CRSH 8/11/82

GROUND WATER ROUTE WORK SHEET								
	Rating Factor		ned Value	Multi- plier	Score	Max. Score	Ref. (Section)	
1	OBSERVED RELEASE	0	6	1	45	45	3.1	
	If observed released to the served released t							
2	ROUTE CHARACTERIS	STICS	-	•			3.2	
ļ	Depth to Aquifer Concern	of 0 1	. 2 3	2		6		
	Net Precipitation Permeability of t	he 0 1	2 3	1		3 3		
l	Unsaturated Zone Physical State		. 2 3	11		3		
L	Tot	tal Route C	haracteris	tics Score	N/A	15		
3	CONTAINMENT	0 1	1 2 3	1	N/A	3	3.3	
4	WASTE CHARACTERIS	STICS					3.4	
	Toxicity/Persiste Hazardous Waste Quantity		3 6 9 12 15 1 2 3 4 5 6		18	18 8	·	
	Ţ. To	otal Waste	Characteri	stics Score	18	26		
3	TARGETS						3.5	
	Ground Water Use Distance to Near- est Well/Popular Served	ion 12	2 3 6 8 10 16 18 20 30 32 35 4	3 1	3	9 40		
	To	otal Target	s Score		3	49		
6	If line 1 is 4! If line 1 is 0,	i, multiply multiply	, 11 × 1 2 × 13 ×	4 × 5		7,330	,	
7	Divide line 6 by	57,330 and	multiply	ъу 100	S _{gw} =	4.2	Ч	

Figure 2

Ground Water Route Work Sheet

GROUND WATER ROUTE WORK SHEET								
•	Rating Factor		igned Value (ircle One)		lti- iet	Score	Max. Score	Ref. (Section)
<u>a</u>	OBSERVED RELEAS	Ε	0 (3)		1	45	45	3.1
	If observed relationships and relationships and relationships and relationships are also as a second relationships and relationships are also as a second relationships are a second	ease is p	given a scor	of 45, of 0,	Procee	to 1	ine 2).
2	ROUTE CHARACTER	LSTICS		•				3.2
	Depth to Aquife	r of	0123	•	2		6	
	Net Precipitation Permeability of		0123		1		3	
	Unsaturated Zon Physical State		0123		1		3	1
		otal Rout	te Character	istics So	ere	N/A	15	
<u> </u>	CONTAINMENT		0 1 2 3		1 .	N/A	3	3.3
4	- mail connectivisites							
	Toxicity/Persis Hazardous Waste Quantity	tence	0 3 6 9 12 15 1 2 3 4 5	15 (D) 6 7 8	1 .	18	18	·
	· ·	Total Was	ste Characte	ristics :	Score	18	26	26
3	TARGETS							3.5
	Ground Water Use Distance to Near est Well/Popula Served	·- · }	0 1 2 3 0 4 6 8 10 12 16 18 20 24 30 32 35		3	3	9 40	
		Total Tar	rgets Score			3	49	
6	If line 1 is If line 1 is	45, multi 0, multi	iply [] x	х ж 6 х	<u> </u>		57,330	
0	Divide line 6 b	y 57,330	and multipl	у ъу 100		S _{EV} =	4.7	.4
				_			•	

Figure 2

6.12

Ground Water Route Work Sheet

	SURFACE WATER ROUTE WORK SHEET								
Rating Factor		signed Value Circle One)	Hulti- plier	Score	Max. Score	Ref. (Section			
OBSERVED RELEASI		· @	1	45	45	4.1			
If observed released in the release of the release	ase is giv	en a value of en a value of	45, proceed 0, proceed t	to line	4. 2.				
2 ROUTE CHARACTERIS	STICS				,	4.2			
Facility Slope : Intervening Ter	and rain	0 1 2 3	1		. 3				
1-yr. 24-hr. Rain Distance to Near	nfall	0 1 2 3 0 1 2 3	1 2		3 6				
Surface Water Physical State		0 1 2 3	1		3_				
	otal Route	Characterist	ics Score	N/A	15				
3 CONTAINMENT		0123	. 1	NA	3	4.3			
4 WASTE CHARACTERIS	STICS					4.4			
Toxicity/Persiste Bazardous Waste Quantity		0 3 6 9 12 1 6)1 2 3 4 5		18	18 8				
<u></u>	tal Waste	Characterist	ics Score	18	26	······································			
TARGETS						4.5			
Surface Water Use Distance to a Ser Environment Population Served Distance to Wate Intake Downstres	i/ er	0 1 2 3 ① 1 2 3 ② 4 6 8 10 12 16 18 20 24 30 32 35	3 2 1	900	9 6 40				
To	otal Targe	s Score		6	55				
6 If line 1 is 4: If line 1 is 0,	, multiply multiply	2 x 3	× 5 × 4 × 5	6	4,350	·			
Divide line & by	64,350 and	multiply by	100 S	_{su} - 7.	05				

Figure 7
Surface Water Route Work Sheet

SURFACE WATER ROUTE WORK SHEET								
Teting Factor		Assigned (Circle		Hulti- plier	Score	Max. Score	Ref. (Section	
1 OBSERVED RELEA	ASE	0	(3)	1	45	45	4.1	
If observed real	lease is lease is	given a v given a v	alue of 45 alue of 0,	, proceed to	o line	4. 2.	•-	
2 ROUTE CHARACTE	RISTICS						4.2	
Facility Slope		012	3	1		. 3.		
Intervening To 1-yr. 24-hr. Ru Distance to New	ainfall	0 1 2 0 1 2		1 2	•	3	•	
Surface Water Physical State		012	3	1		3		
	Total Ro	ute Chara	Cteristics	Score	N/A	15		
CONTAINMENT		012	3	1	Na	3	4.3	
WASTE CHARACTE	RISTICS						4.4	
Toxicity/Persis Bazardous Waste Quantity		0 3 6 例1 2	9 12 15 G 3 4 5 6 7) 1 8 1	18	18 8	·	
					<u> </u>	مار		
	Total Wa	ste Chara	cteristics	Score	18	26		
TARGETS							4.5	
Surface Water 1 Distance to a ! Environment		0 1 Q (D) 2		3 2	60	9		
Population Service to Walntake Downstr	ster		8 10 18 20 32 35 40	1	<i>o</i>	40		
	Total Ta	rgets Sco	re		6	55		
6 If line 1 is If line 1 is	45, multi 0, multi	iply 1 ply2 x	× 4 ×	3 4 × 3	64	,350		
Divide line 10	by 64,350	and mult	iply·by lo	o s,	"- 7.	5 5	10.9	

Figure 7
Surface Water Route Work Sheet

28 WZ = CJBH = . 0 x 81 x 24 Sw

AIR ROUTE WORK SHEET										
Rating Factor	Assigned (Circle		Multi- plier	Score	Max. Score	Ref. (Section)				
1 OBSERVED RELEAS	SE 0	(3)	1	45	45	5.1				
Date and Locat:	ا دعارت		Nexthan							
Sampling Protocol: 2- HLU photo - ionizers \$ 1-04										
If line 1 is 0, then S = 0. Enter on line 6. If line 1 is 45, then proceed to line 2.										
2 WASTE CHARACTER	ISTICS	•				5.2				
Reactivity and Incompatibility	<u>O</u> 2 3	•	1	-1	3					
Toxicity Hazardous Waste Quantity	0 1 2(3	45678	3 , 1	0	7 9					
	-	_	•	10						
T	ctal Waste Charac	teristics	Score	×	20					
3 TARGETS					·	5.3				
Population With 4-Mile Radius	in] 0 9 12 (2) 24 2		1 :	21	30					
Distance to Sen Environment	ب د سې		2	0	6					
Land Use	0 1 23	3	1	3	3					
•										
·										
 -						,				
<u> </u>	Total Targets Sco	ore		24	39					
Multiply [] ×	2 × 3			3	35,100					
Divide line 4 b	y 35,100 and mult	iply by 1	00 S		23	T .				
Figure 9 30,77										

Figure 9
Air Route Work Sheet

$$\frac{35 100}{45 \times 45 \times 24} = \frac{10000}{4320} = \frac{38}{45 \times 45}$$

	١.		
·		s	s ²
Groundwater Route Score (Sgw)		4.24	17.98
Surface Water Route Score (S _{SW})		7.55	57.00
Air Route Score (Sa)	•	12.34	946.80
$s_{gw}^2 + s_{sw}^2 + s_a^2$			1001, 78
$\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2}$			15.05
$\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2} / 1.73$			18 . 48 S _M - 8 - 70

Figure 10 WORKSHEET FOR COMPUTING $\mathbf{S}_{\mathbf{M}}$

	1.	•	
-	<u>.</u>	S	s ²
Groundwater Route Score (Sgw)		4.24	17.98
Surface Water Route Score (S _{SW})		7.55	\$7.00
Air Route Score (Sa)	•	12.37	946.80
$s_{gw}^2 + s_{sw}^2 + s_a^2$			1021, 118
$\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2}$			15.05+
$\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2} / 1.73$:ও - ৭৪ ১ _ন - ৪- 7৪

Figure 10 worksheet for computing $s_{\underline{M}}$

FIRE AND EXPLOSION WORK SHEET								
Rating Factor		signed Value Circle One)	Multi- plier	Score	Max. Score	Ref. (Section)		
1 Containment		1 🕝	. 1	3	3	7.1		
2 Waste Characteris	stics					7.2		
Direct Evidence		o (3)	1	કે.	3			
· Ignitability	•	0 1 2 3	1	3.	3			
Reactivity		0 2 3	. 1 🖘	I.	3			
Incompatibility	y	0 1 2 3	1	Ĺ	,			
Hazardous Wast	e Quantity	601 2 3 4 5 6 7 8	1	0	8			
Γ	Total Wast	e Characteristics Sc	ore	8	20			
3 Targets						7.3		
Distance to Ne	arest	0 1 2 3 4 5	1	3	5			
Distance to Ne	arest	0 1 23	1	2	3			
Distance to Se Environment	ensitive	⊘ 1 2 3	1	0	3			
Land Use	•	0 1 2	1	3	3			
Population Wit 2-Mile Radius	thin s	0 1 2 3 4 🕥	1	5	5			
Buildings With 2-Mile Radius	hin	012345	. 1	S	5			
	Total Targ	et Score		18	24			
4 Multiply 1 :	(2 x 3	•			1,440			
5 Divide line 5 by	1,440 and m	ultiply by 100		SFE	- 3ව	. 0		

Figure 11
Fire and Explosion Work Sheet

	DIRECT CONTACT WORK SI	HEET		_		
Rating Factor	V2277iica	ulti- lier	Score	Max. Score	Ref. (Section)	
1) Observed Incident	· (3)	1	45	45	8.1	
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2						
2l. Accessibility	0123	1		3	8.2	
Containment	o is	1	C	15	8.3	
Uaste Characteris Toxicity	0 1 2 3	5	15	15	8.4	
Targets .					8.5	
Population with	in a 0123@5	4	16	20		
l-mile radius Distance to a critical habit	() 2 3	4	0	12	•	
CINTICAL MADIC	Total Targets Score		16	32		
6 If line 1 is If line 1 is	45, multiply 1 x 4 x 5 0, multiply 2 x 3 x 4 x	131		21,600		
	by 21,600 and multiply by 100		SDC -	50		

Figure 12
Direct Contact Work Sheet